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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/595,128	11/15/2006	Anthony Richard Pratt	2001145.120US1	3127
23483	7590	08/18/2010		
WILMERHALE/BOSTON 60 STATE STREET BOSTON, MA 02109			EXAMINER CORRIELUS, JEAN B	
			ART UNIT 2611	PAPER NUMBER
			NOTIFICATION DATE 08/18/2010	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/595,128	Applicant(s) PRATT ET AL.	
	Examiner Jean B. Corrielus	Art Unit 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 July 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-8,10-22 and 98 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4-8,10-22, and 98 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Art Unit: 2611

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1, 4-8, 10-22 and 98 are provisionally rejected under the judicially created doctrine of obviousness- type double patenting as being unpatentable over claims 1, 98-115 of U.S. application 12/815,189. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim(s) 1 of copending patent application 12/815,189 contain(s) every element of claim(s) 1 of the instant application and as such anticipate(s) claim(s) 1 of the instant application. Likewise, claim 4 of the instant application is encompassed by claim 98 of the copending application.

Claim 5 of the instant application is fully encompassed by claim 99 of the copending application.

Claim 6 of the instant application is encompassed by claim 100 of the copending application.

Claim 7 of the instant application is fully encompassed by claim 101 of the copending application.

Claim 8 of the instant application is encompassed by claim 102 of the copending application.

Claim 10 of the instant application is fully encompassed by claim 103 of the copending application.

Art Unit: 2611

Claim 11 of the instant application is encompassed by claim 104 of the copending application.

Claim 12 of the instant application is fully encompassed by claim 105 of the copending application.

Claim 13 of the instant application is encompassed by claim 106 of the copending application.

Claim 14 of the instant application is fully encompassed by claim 107 of the copending application.

Claim 15 of the instant application is encompassed by claim 108 of the copending application.

Claim 16 of the instant application is fully encompassed by claim 109 of the copending application.

Claim 17 of the instant application is encompassed by claim 110 of the copending application.

Claim 18 of the instant application is fully encompassed by claim 111 of the copending application.

Claim 19 of the instant application is encompassed by claim 112 of the copending application.

Claim 20 of the instant application is fully encompassed by claim 113 of the copending application.

Claim 21 of the instant application is encompassed by claim 114 of the copending application.

Art Unit: 2611

Claim 22 of the instant application is fully encompassed by claim 115 of the copending application.

As per claim 98, it is well known in the art to use modulate a signal using a subcarrier (Note Dafesh col. 6, lines 43-45). Given that it would have been obvious to one skill in the art to modulate a ranging signal using a subcarrier in order to produce desired signal not being capable of being intercepted by unauthorized users.

“A later patent claim is not patentably distinct from an earlier patent claim if the later claim is obvious over, or **anticipated by**, the earlier claim. In re Longi, 759 F.2d at 896, 225 USPQ at 651 (affirming a holding of obviousness-type double patenting because the claims at issue were obvious over claims in four prior art patents); In re Berg, 140 F.3d at 1437, 46 USPQ2d at 1233 (Fed. Cir. 1998) (affirming a holding of obviousness-type double patenting where a patent application claim to a genus is anticipated by a patent claim to a species within that genus). “ ELI LILLY AND COMPANY v BARR LABORATORIES, INC., United States Court of Appeals for the Federal Circuit, ON PETITION FOR REHEARING EN BANC (DECIDED: May 30, 2001).

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Art Unit: 2611

4. Claims 1 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Mori US Patent No. 5,745,535.

As per claim 1, Mori discloses a method and apparatus comprising modulating a carrier signal **Wc** by a plurality of subcarrier modulation signals (note col. 1, lines 35-48, lines 59-67), the subcarrier modulation signal uses 16QAM modulation scheme, note col. 1, line 43, as known in the art a 16 QAM modulation scheme has 3 amplitude levels (note US patent application publication no. 2007/0047637 paragraph 0070 and fig. 4 that shows a 16QAM modulation scheme having 3 levels).

As per claim 4, see rejection of claim 1 above.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mori US patent No. 5,745,535 in view of Dahan et al US patent Application Publication No. 2002/0070799.

As per claims 5-6, as applied to claim 1 above, Mori teaches every feature of the claimed invention but does not explicitly teach the use of triangular wave as a basis waveform. As shown in at least in the drawing (see front page of the US Patent application publication No. 2002/0070799 and note input to summer 35), it is well known in the art to use a triangular wave as a basis waveform. Given that fact, it would have

Art Unit: 2611

been obvious to one skill in the art to incorporate such a teaching in Mori in order to provide Mori with the capability to generate desired carrier signal necessary to modulate the signal prior to transmission because, as known in the art, prior to any transmission, a signal has to properly modulated with a carrier so as to ensure proper transmission.

As per claim 7, the combined references teaches every feature of the claimed invention, but does not explicitly teach the additional limitations of selecting the waveform according to a desired power distribution characteristics of the transmission signal. However, selecting the waveform according to a desired power distribution characteristics of the transmission signal would have been in the purview of one skill in the art. Given that it would have been obvious to one skill in the art to select the waveform according to a desired power distribution characteristics of the transmission signal so as to ensure that negative effect of the transmission medium is compensated for in order to improved integrity of the transmission system.

7. Claims 8, 10, 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mori US Patent No. 5,745,535 in view of Poklemba et al US Patent Application publication No. 20030141938.

As per claim 8, as applied to claim 1 above, Mori teaches every feature of the claimed invention but does not explicitly teach the further limitation of providing at least two mutually orthogonal subcarrier modulation signals. Poklemba et al teaches a carrier generator for generating two carrier signals $\cos wct$ and $\sin wct$ separated by a phase shift of 90 degrees. Given that fact, one skill in the art would have been motivated to generate a pair of carrier signals in the manner taught by Poklemba et al so that

Art Unit: 2611

interference can be minimize since orthogonal carriers will ensure that the signals are separated from each other in such a way no interference can be created.

As per claim 10, Poklemba et al teaches that the carriers are separated by a predetermined phase, 90 degrees. One skill in the art would have been motivated to use such a phase shift for the reason provided with respect to claim 8 above.

As per claim 11, the Poklemba et al show an inphase carrier $\cos wct$ and an inphase carrier $\sin wct$ see the drawing. One skill in the art would have been motivated to use such carriers in Mori for the same reasons provided above with respect to claim 8.

As per claim 12, it would have been obvious to one skill in the art to determine the multiple amplitudes of the inphase and quadrature carriers to maintain a constant transmission signal envelope and the motivation to do so would have been to ensure that the signal level is maintained within the operational range of the amplifier that may be used to transmit the signal.

8. Claims 13-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mori US Patent No.5,745,535.

As per claim 13, as applied to claim 1 above, Mori teaches every feature of the claimed invention but does not explicitly teach the further limitation of deriving the amplitudes from a plurality of phase states. However, selecting the amplitudes from a plurality of phase states would have been in the purview of one skill in the art as such would have enabled the amplitude of the signal that fit predetermined criterion so as to generate only desired modulated signal.

Art Unit: 2611

As per claim 14, providing phase states that are equally angularly distributed around the unit circle would have been in the purview of one skill in the art for the reason provided above with respect to claim 13.

As per claim 15, providing amplitudes of equal duration would have been in the purview of one skill in the art for the reason provided above with respect to claim 13.

As per claim 16, providing amplitudes of unequal duration would have been in the purview of one skill in the art for the reason provided above with respect to claim 13.

As per claim 17, it would have been obvious to one skill in the art to quantize the durations according to an associated clock signal so as to satisfy requirement of the system.

As per claim 18, it would have been obvious to one skill in the art to define the associated phase states according to mutually orthogonal axes so as to ensure that interference between the carrier signals is minimized.

As per claim 19, it would have been obvious to one skill in the art to associate the phase states with ranging signals so that the system can be used in radars that use ranging signals.

As per claim 20, it would have been obvious to one skill in the art to use unequal dwell times in the phase states for the reason provided above with respect to claim 13.

As per claim 21, it would have been obvious to one skill in the art to use a first dwell time for a first group of phase states and a second group of dwell time for a second group of phase states for the same reason provided above with respect to claim 13.

As per claim 22, see claim 17.

9. Claim 98 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mori US Patent No.5,745,535 in view of Dafesh et al US Patent No. 7,120,198.

As applied to claim 1 above, Mori teaches every feature of the claimed invention but does not explicitly teach modulating a ranging signal using a subcarrier. However, as evidenced by Dafesh col. 6, lines 43-45, it is well known in the art to modulate a ranging signal using a subcarrier. Given that it would have been obvious to one skilled in the art to have modified Mori by modulating a ranging signal using a subcarrier in order to produce a desired signal not being capable of being intercepted by unauthorized users.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jean B. Corrielus whose telephone number is 571-272-3020. The examiner can normally be reached on Monday-Thursday from 9:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2611

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jean B Corrielus/
Primary Examiner, Art Unit 2611